

III. SKELETAL SYSTEM / UPPER LIMB

FOREARM BONES

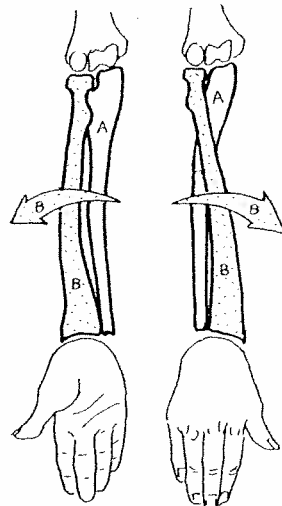
ULNA
RADIUS

CN Though the humerus is not colored, the titles and arrows (C) that reflect its participation in the elbow joint should be colored with the same color the bone received on Plate 25. (1) Color the two large views, including the interosseous membrane (gray). (2) Color the four views of the elbow joint. (3) Color the ligaments of the region.

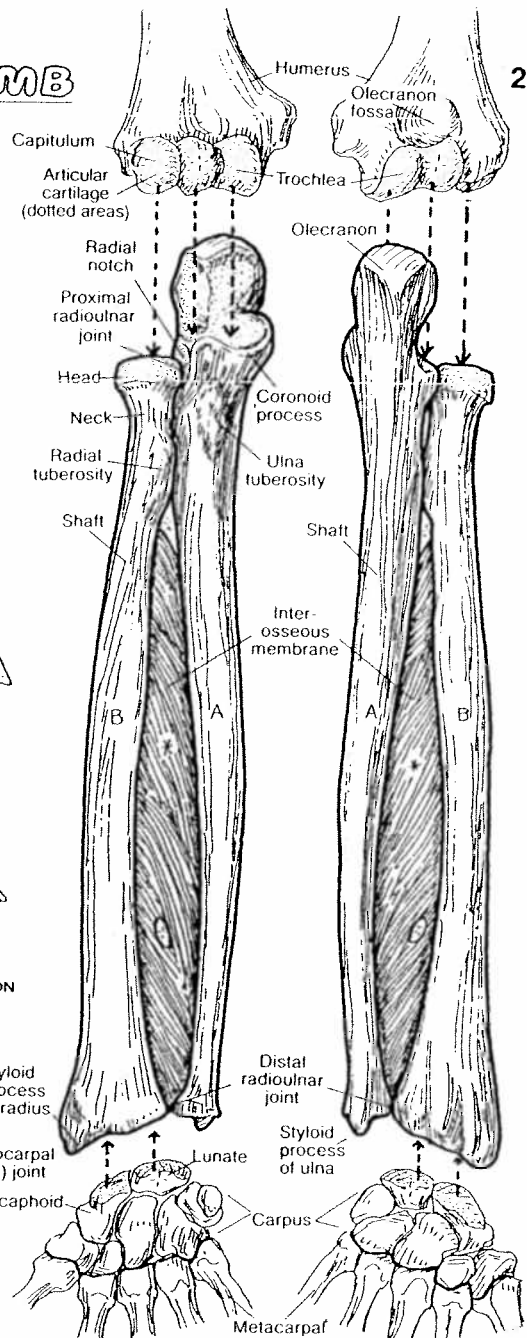
The presence of two bones in the forearm make possible the diverse movements seen at the elbow and reflected in hand motion. The *ulna*, the major, stabilizing forearm bone at the elbow, narrows distally to form an inconsequential joint with the radius (distal radioulnar joint, synovial, pivot-type). The *radius*, smaller above, widens and thickens distally to form the major joint at the wrist (radiocarpal joint, synovial, biaxial, ellipsoid-type). At the elbow, the ulna forms a hinge type synovial *humero-ulnar joint* with the trochlea of the humerus, and the radius forms a pivot-type synovial *radiohumeral joint* with the capitulum of the humerus. These joints share the same joint capsule with the proximal *radioulnar joint* (synovial, pivot type) between the radial notch of the ulna and the radial head. The three joints constitute the elbow (cubital) joint.

Rotation of the radius at the elbow (involving two of the three joints at the elbow) rotates the forearm, wrist, and hand without moving the ulna. Movement of the hand to a palm-forward (up) position is supination; movement of the hand to a palm-back (down) position is pronation.

After coloring and studying the supination/pronation and movement diagrams, try this: place the fingers of your right hand on your right olecranon (bump at posterior elbow), now flexed so that the palm of your right hand is up (supine). Now rotate (pronate) your right hand so your palm turns away from you, facing down. Move your right hand back and forth in this manner, feeling that the olecranon does not move during these motions. Further, stare at the styloid process of the radius at the base of the right thumb and note that it rotates back and forth with the thumb. You have just demonstrated that the radius moves around the ulna during pronation/supination, and that joint movement occurs at the radiohumeral and proximal radioulnar joints.



SUPINATION
PRONATION
(Anterior view)



ANTERIOR VIEW
(Right arm)

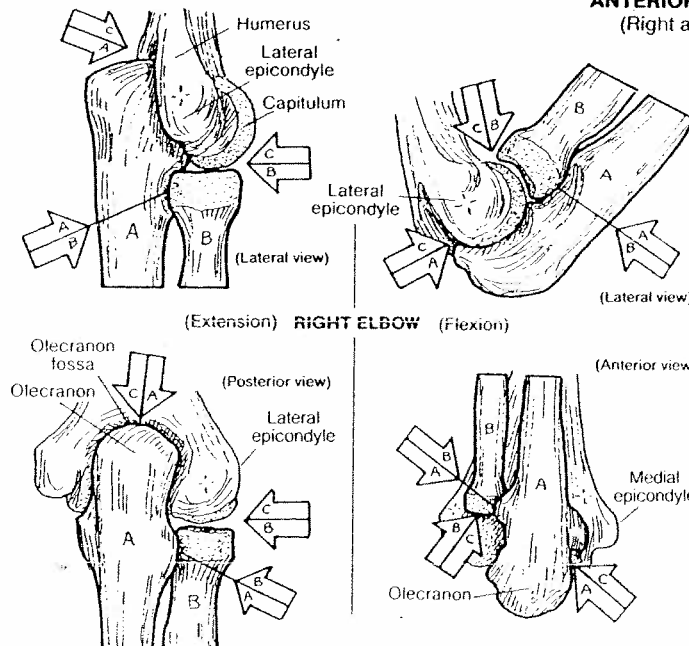
POSTERIOR VIEW
(Right arm)

3 JOINTS
AT THE
RIGHT
ELBOW:*

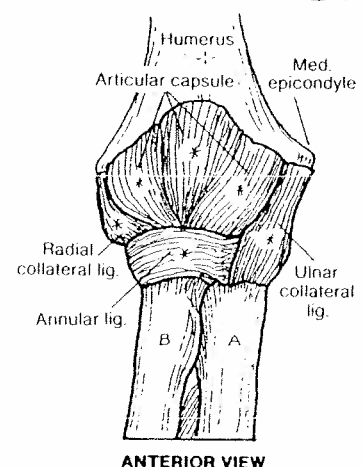
HUMERO-ULNAR

RADIO-HUMERAL

PROXIMAL RADIO-ULNAR



LIGAMENTS*



ANTERIOR VIEW